CLAIMS:

1. An impeller pump for a fluid, comprising:

a rotary impeller;

a pump housing defining a first main flow channel and a second main flow channel, wherein the rotary impeller is disposed within a space defined in the pump housing and opposes to the first main flow channel and the second main flow channel, respectively, so that a first pump chamber and a second pump chamber are defined on both sides of the impeller;

a first inlet channel and a second inlet channel defined in the pump housing, wherein the first inlet channel communicates with one end of the first main flow channel and the second inlet channel communicates with one end of the second main flow channel, respectively; so that the fluid is drawn into the first pump chamber and the second pump chamber via the first inlet channel and the second inlet channel, respectively, and

a first outlet channel and a second outlet channel defined in the pump housing, wherein the first outlet channel communicates with the other end of the first main flow channel and the second outlet channel communicates with the other end of the second main flow channel.

2. An impeller pump as in claim 1, wherein the first and second inlet channels do not directly open into the space defined in the pump housing for rotatably receiving the impeller.

3. An impeller pump as in claim 2, wherein the first and second inlet channels are configured as separate bores formed in the pump housing.

4. An impeller pump as in claims 3, wherein the first pump chamber and the second pump chamber has a central axis that extend in the circumferential direction of the impeller, and at least one of the first inlet channel and second inlet channels has a longitudinal axis that is offset in the axial direction of the impeller from the central axis of the corresponding first pump chamber and/or the second pump chamber.

5. An impeller pump as in claim 4, wherein the at least one of the first and second inlet channels is inclined relative to a plane that is perpendicular to the axial direction of the impeller.

6. An impeller pump as in claim 4, wherein the at least one of the first and second inlet channels has a cross sectional configuration that is elongated in a widthwise direction that is substantially perpendicular to the axial direction of the impeller.

7. An impeller pump as in claim 3, wherein the first and second inlet channels open to the outside via respective inlet openings, the first and second outlet channels communicate with the terminal ends of the first and second main flow channels via respective communication openings, the inlet opening of at least one of the first and second inlet channels extends along an angular range (α) about a rotational axis of the impeller, the communication opening of the corresponding first outlet channel and/or the second outlet channel extends along an angular range (β) about the rotational axis of the impeller, and the angular range (α) and the angular range (β) at least partly overlap with each other.

8. An impeller pump as in claim 1, wherein each of the first and second main flow channels extends along a substantially arc shaped path, and at least one of the first and second inlet channels extends along a tangential direction with respect to the substantially arc shaped path of the corresponding first main flow channel and/or second main flow channel.

9. An impeller pump as in claim 3, wherein each of the first and second main flow channels extends along a substantially arc shaped path, and at least one of the first and second inlet channels extends along a direction that is inclined outwardly by an angle of (θ) relative to a tangential line (L1) with respect to the substantially arc shaped path of the corresponding first main flow channel and/or second main flow channels.

10. An impeller pump as in claim 9, wherein the angle of (θ) is defined by the tangential line (L1) and a central line (L2) of the at least one of the first and second inlet channels, and the central line (L2) extends along a direction of a resultant vector (S1) from a first vector

component (S2) and a second vector component (S3) of the flow velocity of the fluid at the start end of the corresponding first main flow channel and/or second main flow channel, and the first vector component (S2) is oriented to extend along the tangential line and the second vector component (S3) is oriented in the radial direction of the impeller.

11. An impeller pump as in claim 3, wherein each of the first and second main flow channels extends along a substantially arc shaped path, and at least one of the first and second outlet channels extends along a direction that is inclined outwardly by an angle of (γ) relative to tangential line L(3) with respect to the substantially arc shaped path of the corresponding first main flow channel and/or the second main flow channel.

12. An impeller pump as in claim 11, wherein the angle of (γ) is defined by the tangential line (L3) and a central line (L4) of each of the first and second outlet channels, and the central line (L4) extends along a direction of a resultant vector (V1) from a first vector component (V2) and a second vector component (v3) of the flow velocity of the fluid at the terminal end of the corresponding first main flow channel and/or second main flow channel, and the first vector component (V2) is oriented to extend along the tangential line and the second vector component (V3) is oriented in the radial direction of the impeller.

13. An impeller pump as in claim 1, further including a convergence port defined in the pump housing in a position opposing to an outer periphery of the impeller in a radial direction of the impeller, wherein the flow of the fluid from the first outlet channel and the flow of the fluid from the second outlet channel converge at the convergence port.

14. An impeller pump as in claim 1, wherein the pump housing comprises a first pump housing member and a second pump housing member, the first inlet channel, the first main flow channel and the first outlet channel are defined in series in the first pump housing member, and the second inlet channel, the second main flow channel and the second outlet channel are defined in series in the second pump housing.

15. An impeller pump as in claim 1, wherein the impeller comprises a row of grooves on either side of the impeller and has no communication holes that extend through the impeller in an axial direction in order to connect the first pump chamber and the second pump chamber.

16. An impeller pump as in claim 1, further comprising a motor arranged and constructed to rotate the impeller.

17. An impeller pump for a fluid, comprising:

a rotary impeller without communication holes extending in an axial direction of the impeller;

a pump housing arranged and constructed to rotatably receive the impeller, wherein the pump housing defines a first pump chamber and a second pomp chamber on either side of the impeller;

inlet means for communicating between one end of each of the first and second pump chambers and the outside of the pump housing; and

outlet means for communicating between the other end of each of the first and second pump chambers and the outside of the pump housing.

18. An impeller pump as in claim 17, wherein the inlet means comprises a first inlet channel and a second inlet channel that are defined separately in the pump housing, and the outlet means comprises a first outlet channel and a second outlet channel that are defined separately in the pump housing,

19. An impeller pump as in claim 18, wherein each of the first and second pump chambers has a substantially arc shaped configuration, at least on of the first and second inlet channels extends in a substantially tangential direction from the one end of the corresponding first pump chamber and/or second pump chamber or is inclined by an angle of (θ) ($0° < \theta < 90°$) relative to the tangential direction.

20. An impeller pump as in claim 18, wherein at least one of the first and second inlet channels has a central axis that is offset or is inclined relative to a plane within which the corresponding first pump chamber and/or second pump chamber.